TESTIMONY OF LARRY IRVING

ASSISTANT SECRETARY FOR COMMUNICATIONS AND INFORMATION

NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION (NTIA)

U.S. DEPARTMENT OF COMMERCE

ON

REAUTHORIZATION OF NTIA

BEFORE THE SUBCOMMITTEE ON

TELECOMMUNICATIONS, TRADE, AND CONSUMER PROTECTION

COMMITTEE ON COMMERCE

U.S. HOUSE OF REPRESENTATIVES

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Mr. Chairman and Members of the Committee:

Thank you for this opportunity to testify before you today on the reauthorization of the Department of Commerce's National Telecommunications and Information Administration (NTIA).

INTRODUCTION

As the President's principal adviser on domestic and international telecommunications and information policy, NTIA develops and advocates Administration policies for telecommunications and information-related industries, which are expected to grow to 17 percent of our domestic economy by the early 21st Century. Generating more than three-quarters of a trillion dollars in annual revenues, the telecommunications and information sectors represent the growth industries of today and the next century. These sectors encompass a broad range of services and products, including those offered by wired and wireless telephony, broadcast and cable television, the Internet, satellites, and other delivery systems.

Changes are taking place in our nation as a result of new telecommunications and information technologies and their applications. We are using these technologies to grow our economy, to expand markets both domestically and internationally, to generate new products and services. We are realizing the

power of technology to bring high-wage, high-skilled jobs to our nation's workforce and new resources to our students.

The high-technology sector is increasingly becoming the linchpin of our economic success in the 1990s and into the 21st Century. Indeed, the high-technology sector has replaced the traditional cyclical industries, such as autos and construction, as *the* driving force for growth. For the past three years, high-tech companies have contributed 27 percent of the growth in our gross domestic product, compared with 14 percent for residential housing and only four percent for the automobile companies. Over just this past year, 33 percent of GDP growth is the result of information technology industries, which includes everything from the Internet and its related products to direct broadcast satellite television.

There are more than 9 million workers now in the high-tech sector. And that is not accounting for any multiplier effect, which is significant. For example, a study of Microsoft's impact on the Washington State economy showed that each Microsoft job created 6.7 new jobs in the state. Compare this with a 3.8 multiplier for Boeing Co. High-tech jobs have accounted for roughly 20-25 percent of the real wage and salary growth over the past year.

And Wall Street sees continued growth in America's high-tech giants, as illustrated by the following statistic: The market capitalization of Intel, Microsoft, and Cisco together is almost three times that of Detroit's big three car companies, even though the car companies' sales are more than ten times higher than the high-tech firms.

The heightened importance of the telecommunications and information sectors of the economy has engendered new and pressing policy development and advocacy needs. NTIA's work in developing pro-competitive, pro-consumer policies, managing the Federal use of the radio spectrum, and opening foreign markets to U.S. companies is key to maintaining U.S. competitiveness. We are working hard to capitalize on American ingenuity and innovation in the telecommunications and information industries, and bring new opportunities to American businesses and workers.

NTIA will be drafting authorizing legislation for the agency's programs, which we will submit to Congress when it is completed. Today, I will highlight NTIA's key operations -- operations that are essential to promoting continued growth in these critical areas. NTIA's programs focus on three major priorities: (1) managing Federal spectrum use to improve efficiency, increasing private sector access to spectrum

resources, and planning for future spectrum needs, including those of the public safety community; (2) promoting competition and opening markets, both domestic and global; and (3) promoting universal access and affordable telecommunications services for all Americans.

HIGHLIGHTS OF NTIA'S PROGRAM OPERATIONS

Improving Federal Spectrum Users' Efficiency, Increasing Private Sector Access to Spectrum, and Planning for Future Spectrum Needs

Let me begin with one of NTIA's core functions -- spectrum management. NTIA serves as a policy adviser to the President on spectrum issues, in addition to managing the Federal Government's use of the radio frequency spectrum. The fundamental goal of spectrum management at NTIA, as it is around the globe, is to avert potential interference between users and to ensure that spectrum is available for existing and future needs through the most efficient use of the spectrum. Because of the tremendous demand for spectrum resources, however, we often must balance the costs of displacing existing users with the potential benefits of the new services.

Spectrum Efficiency

The Federal Government constantly seeks to modernize its radiocommunications, decrease its channel bandwidths, and increase its use of digital technology and private sector radiocommunications. NTIA uses the following management tools to improve Federal spectrum use:

- *Requiring Federal users to use commercial services where possible*

NTIA requires that every Federal Government user requesting a frequency assignment must first determine that its need cannot be met by a private or commercially available service provider. This policy has resulted in increased use of commercial services by Federal Government users, such as the Department of Defense.

- *Promoting the use of new spectrum efficient technologies*

The Federal Government is a leader in developing new spectrum-efficient techniques such as narrowbanding, digital modulation, and spectrum sharing as well as in the use of the highest quality spectrum-efficient equipment. These techniques will lead to a doubling, and possibly quadrupling, of the number of frequencies available for land mobile communications. NTIA has required that all Federal users move to more efficient 12.5

KHz equipment for mobile communications by 2005. In another example, the Federal Aviation Administration has increased their use of certain frequency bands more than 33 times through more advanced technology.

- *Engaging in spectrum planning*

In 1993, the Secretary of Commerce submitted the Land Mobile Spectrum Efficiency Plan to Congress, as required by the NTIA Organization Act. The implementation of this plan resulted in: (1) more usage of commercial and government-owned trunking systems, (2) doubling the channels in three major Federal land mobile bands through new narrowband technology, and (3) the promotion of sharing with the private sector. Several years later, the private sector adopted a similar narrowband channel plan.

- *Collecting spectrum management fees*

Pursuant to Congressional mandate, NTIA put forth a program designed to collect fees from Federal agencies for spectrum

management services provided by NTIA. NTIA proposed that each agency be charged in proportion to its use of the spectrum, and that the fee system be implemented over a five year period beginning in FY 1996.

Based on this report, Congress implemented legislation in 1996 (P.L. 104-134) directing NTIA to charge Federal agencies for NTIA's cost of managing the radio frequency spectrum. At the same time, Congress reduced the amount of direct appropriations to NTIA by the amount of the fees.

Due to serious difficulties in collecting fees in FY 1996, Congress passed a law (P.L. 104-208) that clearly specified that Federal agencies shall pay the fees charged by NTIA for spectrum management costs in FY 1997 and that, if they do not, they will have to cease using the spectrum. The legislation also directed that NTIA charge a total of $5 million in fees in FY 1997. NTIA sent letters to 29 agencies requesting payment. NTIA has received memorandums of understanding or equivalent from these agencies for the full $5 million, and has received payments to date of approximately $3.2 million.

To give the agencies as much notice as possible, NTIA informed the agencies of their estimated costs for FY 1998 in

July 1996, so that their costs could be included in their respective budget submissions to Congress. The Administration plans to increase the fees in 1998 to $7.5 million.

Increasing private sector access to spectrum

NTIA continues to work with the FCC, the private sector, and Federal agencies to promote sharing of spectrum with private sector users. Since 1978, NTIA has coordinated the reallocation of more than 5,000 MHz of spectrum to exclusive private use or greater shared use with private sector entities. This is a significant amount of spectrum -- today's entire cellular telephone industry is allocated only 50 MHz.

- *Spectrum reallocation*

Over the past several years, NTIA has begun to reallocate 235 MHz of spectrum from Federal Government use to the private sector. The process for identifying spectrum for reallocation was based on a two year study which took into account two major factors: (1) the impact on the Federal agencies, in terms of mission, costs, and potential reduction of services to the public, and (2) the benefits expected to be realized by the public. Based on the extensive planning and coordination with

the FCC, government agencies, and the public to produce this report, NTIA also identified an additional 35 MHz of Federal spectrum to transfer to private use. NTIA has already reallocated 145 MHz. The remaining 90 MHz will be reallocated to the FCC by the year 2004.

NTIA has also recently transferred spectrum to support satellite systems. During the International Telecommunication Union World Radiocommunication Conference (ITU/WRC) in October 1995, NTIA coordinated the release of 3 MHz of Federal Government spectrum for exclusive use in mobile satellite systems (low earth orbiting satellites, or LEOs). NTIA has also arranged for shared use of 360 MHz of Federal Government spectrum for mobile satellite links for big LEOs.

In addition, NTIA worked closely with the FCC to allocate 300 MHz of spectrum previously used primarily by the Federal Government for shared use with unlicensed wireless networks. Because these networks are unlicensed, they will be relatively affordable, and thus will provide an important networking option that will be attractive to schools, libraries, and others with limited financial resources.

- *Reimbursing Federal users that move to accommodate private users*

To accelerate the transfer of spectrum from Federal to private sector use, NTIA has proposed that winning bidders in auctions for spectrum now used by Federal agencies reimburse these Federal users for costs of relocating their operations relocation costs. NTIA worked with the Congress on this proposal last year. This important reform will be made part of the Administration's submission for NTIA's authorizing legislation, which NTIA plans to forward to Congress in May. The Administration proposes that incumbent Federal users have the same rights that incumbent private users have who are moved from a band of spectrum that will be auctioned. The new users reimburse the old users to move by purchasing equipment or paying for other expenses.

When NTIA identified 235 MHZ for relocation in 1993, there were many Federal users who could not be moved until after the year 2000 because they had no immediate means to pay for such a move. The total cost of moving operations and paying for new equipment for these Federal users is estimated at $500 million. This cost will be borne directly by taxpayers through the appropriations process, unless we can find a way to have new

entrants pay for this relocation. If the Congress supports this language, spectrum can be cleared more quickly to accommodate new private sector users, and Federal operations -- including national security and public safety activities -- can be maintained.

Planning for Future Spectrum Needs

- *Reinventing the spectrum authorization process*

NTIA began a program in 1993 to develop an automated Federal spectrum management system to provide a standardized, automated method for Federal agencies to submit applications for spectrum support, select spectrum that is interference free, and validate that the spectrum requested is within the rules and regulations governing spectrum authorization. This system will allow NTIA to make the spectrum process more efficient and responsive, more accessible and less bureaucratic. NTIA introduced the Joint Spectrum Management System for windows (JSMS) in March 1997. Improvements will continue on JSMS to make it more effective and to make use of spectrum more efficient. JSMS is providing tools to spectrum managers in the field so that they can manage their own use of the spectrum, use the spectrum more efficiently, and more rapidly obtain spectrum to meet their needs.

- *Meeting Spectrum Needs for Future Public Safety Use*

One of the most pressing Federal spectrum needs is that of public safety. Under Congressional leadership, NTIA and the FCC established the Public Safety Wireless Advisory Committee (PSWAC) in 1995. The Committee was composed of appointees from Federal, State, and local governments and private sector public safety organizations. The goals were to evaluate the wireless communications needs of these public safety agencies through the year 2010 and recommend possible solutions to the lack of available spectrum and interoperability problems. In September 1996, PSWAC submitted a report outlining public safety needs for additional spectrum, improved interoperability, more flexible licensing policies, and increased sharing of spectrum resources.

To meet the immediate and future needs of the public safety community, the Committee made the following observations and recommendations:

* More spectrum is required. 2.5 MHz of spectrum should be identified for interoperability among Federal, State, and local public safety agencies from new or existing allocations as soon as possible. In the short term (within 5 years), approximately 25 MHz of new Public Safety

allocations are needed, and over the next 15 years, as much as an additional 70 MHz of spectrum will be required.

* Improved interoperability is required. Today's interoperability needs can be addressed by establishing bands of frequencies for interoperability purposes, encouraging the development and use of shared systems, and building gateways between technically incompatible systems.

* More flexible licensing policies are desirable. Policies should encourage the use of the most spectrally efficient approaches while remaining technology neutral.

* More sharing and joint use should be encouraged. Some states and regions are experiencing considerable success in pooling spectral and other resources.

* Commercial services should be used wherever possible.

* Consultative processes should be established.

* Funding limitations remain an obstacle. At a time when government budgets are tight, alternative methods of funding future public safety communications systems must be

identified. To address this issue, NTIA recommends adoption of our proposed reimbursement language.

NTIA and the FCC are evaluating these recommendations and using other mechanisms to address the longer range recommendations. The President's FY 1998 budget proposes that four channels between existing broadcast channels 60 to 69 be allocated for public safety use. Six other channels will be auctioned by the FCC for other services. NTIA advocated allocation of these channels for public safety in an FCC proceeding that was examining potential uses for these channels.

NTIA is continuing to ensure that spectrum is available to meet the needs of the Federal Government and the public safety community in providing the public with law enforcement, national security, safe airways, disaster and environmental control, and safe living conditions. At the same time, NTIA is continuing to work to make the Federal Government's use of the spectrum more effective and efficient.

Promoting Competition and Opening Markets

NTIA actively promotes competition and open markets through domestic and international telecommunications policy development and advocacy, efficient spectrum management and reallocation of spectrum to private sector users, and telecommunications research. NTIA continues to work diligently to eliminate barriers to competition in the telecommunications industry while protecting consumers. NTIA is advocating policies that spur innovation, encourage competition, and create jobs. NTIA is leading Administration efforts to provide rural, inner city, and underserved areas with access to educational opportunities, job training, and better medical care through advanced telecommunications services. NTIA is also performing cutting-edge research and analysis, such as finding ways to use higher frequency spectrum for new wireless services, and developing positions on a wide array of policy issues, such as universal service, spectrum auctions, and privacy on electronic networks.

Domestic Policy Issues

The goal of NTIA's domestic policy activities, which are part of NTIA's role as principal adviser to the President on telecommunications and information policies, is to enhance the public interest by generating, articulating, and advocating creative and influential policies and programs in the

telecommunications and information sectors that enhance service competition, consumer welfare, and economic and social opportunities for all, and that remove impediments to the growth and vitality of these sectors.

NTIA's domestic policy recommendations have made substantial contributions to major governmental actions regarding broadcasting, cable, and telephone issues. The range of domestic telecommunications policy issues is broad and increasingly complex, reflecting the rapid changes in telecommunications technology, its application to the marketplace, and a broadening of the number and types of players. Issues include traditional common carrier telephony and cable television, as well as their convergence with computer services; the improvement of radio spectrum management (e.g., spectrum auctions); rules limiting mass media (radio - television) ownership; development of advanced television (ATV); implications of Internet growth; and content oriented issues such as privacy, hate crimes, or free speech, using telecommunications. For example, NTIA issued a report recommending a voluntary framework to ensure privacy with regard to telecommunications-related personal information. NTIA is now promoting means of achieving industry self-regulation and will be issuing a report on self-regulation and privacy in the near future.

NTIA made substantial contributions to the recently enacted Telecommunications Act of 1996. Many of the Act's provisions require FCC rulemakings for implementation, and NTIA, on behalf of the Administration, is working hard to ensure that the spirit and letter of the law is reflected in the requirements. We have filed formal comments on important issues, including interconnection and universal service. For example, as the definition of universal service is updated for the next century, NTIA is working to ensure that the Administration's priorities for connecting rural Americans to advanced networks and ensuring that telecommunications rates for services are comparable between rural and urban areas.

Apart from the Telecommunications Act, NTIA intends to articulate policies on a host of issues surrounding new, better and lower priced communications products and services, in order to increase the availability of affordable access to telecommunications and information services for all Americans and to encourage technology neutral domestic telecommunications and mass media development. NTIA will suggest ways to encourage the availability of these services to rural and undeserved communities and will identify impediments to the growth and vitality of industry sectors. Foremost among these issues are those related to the growth of the Internet, the transition to

digital television, and the widespread availability of wireless communications devices.

Moreover, NTIA will continue to examine policies that affect the ability of existing and future U.S. mass media services to promote the free flow of information and diversity of voices in electronic media. NTIA will participate in the effort to reform the regulation of existing mass media services, thereby enabling them to be effective competitors in an increasingly competitive video marketplace without limiting the number of voices available to the American public.

NTIA's examination of the mass media extends to new services, such as the upcoming transition to advanced television. Many issues remain to be resolved, particularly concerning the public interest obligations of broadcasters in the new digital era. As Secretariat to the President's Committee on the Public Interest Obligations for Digital Television Broadcasters, NTIA will facilitate the examination of these important issues by private sector representatives.

NTIA will also continue to promote reform of the current system of managing and licensing private sector spectrum use, so that the process of spectrum allocation and assignment is

efficient and fair, so that licensees may offer all kinds of voice and data services to the public. A fully developed wireless communications industry is an essential element to the development of competition in such markets as local phone service. NTIA has a role in developing wireless and spectrum policies. It was instrumental in the development of spectrum auctions and the use of bidding for licenses by computer, which compared to alternative assignment mechanisms available to the FCC, are a transparent mechanism that can award licensees to the parties that value them most highly and within a relatively short period of time -- not to mention while capturing a portion of the value of the spectrum for the American public. NTIA will continue to use its expertise to help refine that system, while also exploring the many other issues associated with the development of wireless voice and data systems.

NTIA will also continue to search for ways to enhance minority participation in telecommunications. Specific efforts that will continue include: (1) directing ComTrain, a training program to assist new minority commercial broadcast owners; (2) disseminating information and conducting seminars on ownership opportunities in telecommunications (for example, NTIA recently published a report identifying financial barriers faced by minority entrepreneurs and small businesses seeking to compete in

the telecommunications industries and suggesting possible financing strategies); (3) developing and commenting on legislative and regulatory proposals that promote minority ownership in telecommunications; (4) working with industry, and other government agencies on initiatives to increase public/private sector assistance to minorities interested in ownership of telecommunications businesses and services; (5) promoting TELECAP, a study of capital development strategies for minority investment in telecommunications; and (6) tracking minority ownership in broadcasting. NTIA will also continue to analyze policies that affect minority participation in telecommunications.

NTIA's domestic policy efforts not only use technical and policy expertise to ensure that the public benefits from any changes in telecommunications policies and laws. In addition, the Administration's telecommunications and information policies developed and advocated by NTIA for domestic markets serve as an important model for international efforts to open global markets to competition. This liberalization, in turn, provides U.S. firms with greater opportunities to be successful participants in those markets.

International Policy Issues

NTIA is playing a leading role in promoting and building international consensus for the core principles underlying the development of the Global Information Infrastructure (GII). The adoption of these key principles by the world community is helping to increase competition and open markets for U.S. companies.

Our nation's economic success depends on our being able to compete around the world. We cannot do so if other countries continue to protect their monopoly telecommunications providers, but we will be tremendously successful if they open their markets to competition.

In my capacity as Assistant Secretary for Communications and Information, I have spent nearly four years working to convince other countries to dramatically change the way they operate their telecommunications networks to encourage more openness, which offers an opportunity for U.S. businesses to compete. I am spending a great deal of time with my counterparts around the world discussing, debating, and persuading them of the benefits of competition and the technical and policy changes necessary to get there.

Every nation in which I have participated in meetings has a ministerial level officer for telecommunications. In most countries, the government owns the telecommunications system. My official government position enables me to discuss with officials from these governments the fundamental structural, technical, and policy changes that will be necessary to their telecommunications infrastructure and help bring about a competitive global marketplace in telecommunications.

NTIA's efforts as a strong advocate for competitive markets globally in bilateral, multilateral and regional negotiations have been successful. For example, last year NTIA coordinated the U.S. Government's participation in the Information Society and Development Conference (ISAD) in South Africa. This Ministerial Conference continued to build on the success of the G-7 Ministerial Conference that took place in February 1995 in Brussels, Belgium, which resulted in an agreement among seven of the world's economic leaders on principles necessary for the development of a global information infrastructure. The ISAD Conference expanded the consensus reached at the G-7 Ministerial on the pro-competitive policies necessary for building the global information society.

NTIA also cosponsored, with the Telecommunications Industry Association, the third Latin American Telecommunications Summit (LATS) in Mexico last fall and played a key role in promoting U.S. interests at the Asia Pacific Economic Cooperation (APEC) Telecommunications and Information Ministerial meeting last fall. NTIA was an active participant in negotiating the World Trade Organization (WTO) agreement on basic telecommunications, which will open nearly all of the world's top telecommunications markets to competition. NTIA is also playing a key role in implementing the WTO agreement. In addition, NTIA is playing a central role in telecommunications talks focused on select foreign countries in Europe, Latin America, Asia, and Africa with significant market opportunities for U.S. providers of telecommunications goods and services.

NTIA is continuing its active advocacy for reform and restructuring within the Intelsat and Inmarsat global satellite organizations. Introducing market incentives enhances competitive opportunities for a large number of U.S. firms seeking fair market access to provide services, and that generally use U.S. equipment providers.

In addition, NTIA is working with other Federal agencies and industry on several other critical international policy matters,

including but not limited to international privacy, electronic commerce, and accounting rate reform. For example, NTIA is playing a lead role in the Administration's efforts to address a European Union privacy directive that could significantly affect transborder data flows. We are also making significant contributions to the Administration's working group on electronic commerce. In addition, NTIA's efforts to advocate pro-competitive accounting rate reform include participation in meetings of multilateral organizations and bilateral meetings with individual foreign governments, as well as participating in regulatory proceedings.

It is also important to mention NTIA's work in the standards arena. NTIA is continuing to promote high quality U.S. standards for data, voice and video communications in international fora. Through its role in international standards-setting, NTIA is promoting U.S. business entry into foreign markets.

International Spectrum Allocation

I would like to note that the United States is forcefully and in many cases, successfully, promoting the concept of independent regulation of private sector telecommunications around the world. We view the independence of the FCC as an

essential pillar of our competitive communications marketplace. We have tried very hard to convince other governments to create independent regulatory authorities governing private use of the spectrum. Such a separation provides U.S. companies operating overseas with the level playing field they need to compete for licenses and permits. In those countries where commercial spectrum allocation decisions are combined with government spectrum allocation decisions in one agency or department, we see a very negative affect on the openness and competitive fairness of the marketplace.

Internationally, NTIA prepares and coordinates Federal Government proposals for the International Telecommunication Union World Radio Conferences and related technical meetings. Major issues include spectrum management reform, negotiations regarding the integration and interference protection for satellite systems that will support the evolving Global Navigation Satellite system for air traffic control, and addressing the public safety spectrum requirements through the year 2010 through the Public Safety Wireless Advisory Committee.

NTIA's work in the international arena also involves securing radio spectrum for new, emerging telecommunications technologies. NTIA is working through international

organizations to make sure that there is enough space set aside for new innovative satellite services such as Globalstar, Iridium, Teledesic, and Odyssey. This is the next generation of communications technology, promising consumers more choice and lower prices, while providing U.S. companies with leadership positions in the development and implementation of such systems.

Mr. Chairman, these new systems will not be developed unless we secure spectrum and coordination agreements for their satellites, and that requires agreements with other governments. In addition, in these international arenas, NTIA secures necessary spectrum for important government uses including those affecting national security and public safety. The need to coordinate with and obtain approval from other governments will become even more important as we move into an era with greater reliance on international communications and satellite-based systems.

Telecommunications Research

NTIA's research laboratory in Boulder, Colorado, the Institute for Telecommunication Sciences (ITS), conducts applied research and engineering to develop new spectrum and networking technologies and to foster improved spectrum management

techniques. For example, research on advanced broadband networks transmission standards, such as Integrated Services Digital Networks, as well as pioneering research in radio frequency characteristics, directly assist U.S. companies competing domestically and in international markets in their efforts to introduce and implement advanced telecommunications products and services. Long term research at ITS includes experimentation to find ways to use higher frequency spectrum that is not now viable for many services, thus increasing the total amount of useable spectrum as well as work to develop measurement methods to more effectively assess the performance of data, audio, video and multimedia communication services.

Some have suggested privatization of NTIA's research laboratory. This would be a serious mistake. This is not the first time that the issue of privatization of the Institute has been examined, resulting in a conclusion that the Institute performs critical public functions and should remain part of the Federal Government. Over the years, there have been various external and internal reviews of NTIA's laboratory, focused on the appropriateness of our telecommunications research and engineering work relative to that which could or should be provided by the private sector. In all these reviews, there emerges a common theme -- that there is a compelling need for a

centralized Federal telecommunications laboratory that serves the public interest by undertaking uniquely governmental research functions in a cost-effective fashion.

These functions cut across Federal, industry, and national needs and cannot be maintained or nurtured in a privatized environment where economic incentive, not the public interest, is paramount. Indeed, the private sector is profit-motivated, and rightly seeks to maximize wealth for owners. In fact, most companies, because of competition, are forced to focus their research on the highest-payoff options, to realize near-term return on investment. A privatized Institute would thus not be able to invest in the kind of essential telecommunications research that today provides broad, cost-effective, benefits to government, industry, and the public at large. If ITS were privatize, the following benefits are amount those the Nation can expect to lose in due time:

- *Radio propagation characteristics database*

ITS maintains the Nation's database of radio propagation characteristics across the entire radio spectrum, which are highly dependent upon natural and man-made environmental parameters, along with the associated computer-based radio system

performance predictions based upon these data. This database and related information is peer-reviewed and accepted by both national and international individuals and organizations as a definitive resource used (a) for developing International Telecommunication Union radio agreements and standards, (b) to develop U.S. positions for International Radio Conferences, (c) by domestic standards developing organizations (e.g., ANSI-accredited T-1 Telecommunication Standardization Committee or the TIA) as definitive models in preparing radio interface standards and spectrum sharing agreements, (d) by NTIA and the FCC in national spectrum management activities, and (e) by a broad community of private sector and government engineers for planning, designing, and implementing radio telecommunication systems. This database facilitates work on advances in telecommunications technology -- such as personal communications services and high definition television -- to benefit all citizens.

A private organization would be unlikely to have the same image of historical reputation, integrity, and objectivity in maintaining the database, and is unlikely to allow openness of use and sharing of this information equally with all.

- *Unbiased review of telecommunications systems*

ITS currently has the neutral and impartial ability to advise many government agencies with regard to telecommunication systems planning and implementation to provide cost-effective results dedicated to their missions. For example, ITS recently provided advice on a national plan for upgrading telecommunications requirements in National Forests, which will provide for services such as public safety, fire protection and fighting, and forest management; planning for the Department of Transportion in developing a national Intelligent Transportation System to aid in traffic control and guidance, and general public transportation safety; consultation to the Federal Railway Administration concerning telecommunication requirements for rail safety and positive train control systems; for the Federal Aviation Administration, evaluating and designing augmented Global Positioning System capabilities for air traffic control as well as ship navigation and other uses; and, for the National Telecommunications System, carrying out studies to assure interoperability and continuity of operations, and development of Federal standards to assure the systems' ability to operate in national emergencies.

These agencies have all indicated that they do not know where they could turn to get such neutral, competent advice if ITS did not exist.

- *Centralized Federal research*

ITS provides select technological contributions and knowledge through a centralized Federal telecommunications research activity.

These contributions and knowledge have brought new concepts or capabilities useful to the telecommunications industry (some patented and moving into commercialization) and provided neutral leadership and coordination in domestic and international standards organizations, which help to provide a level playing field for and obtain desired objectives for U.S. industry in international marketplaces.

Some examples are: the development and industry acceptance of objective performance measurement techniques for data, video, digital audio, and multimedia information systems. U.S. industry found it difficult to reach successful agreements in these areas because of protecting information valuable to them in a competitive environment but, with the new concepts provided by

ITS were able to rather quickly contribute to and agree upon standard methods, in both international and domestic fora, based upon the methods and data provided by ITS. Leadership and coordination roles that are provided by ITS staff in domestic and international fora (which are desired and requested by U.S. industry) provide an effective way of working out agreement between highly competitive companies and creating a forceful U.S. position to be carried forward.

Promoting Universal Access and Affordable Telecommunications Services for All Americans

Ensuring Access for the Underserved

NTIA works to ensure access for all Americans to communications and information networks. On the policy front, NTIA has been leading efforts to redefine universal service to telecommunications services to ensure that rural Americans have access to the same new services being offered in urban and suburban America. Over the past 40 years, rural Americans have gone from about 60 percent having basic phone service to 94 percent today. This is due in large part to our commitment as a nation to universal service policies. In the 1995 report, "Falling Through the Net: A Survey of the `Have Nots' in Rural

and Urban America", NTIA documented the relatively low penetration of telephone connections and computer and modem ownership in rural and inner city communities.

In a 1996 filing with the FCC, we recommended that the Commission set a national subscribership goal for the year 2000 to ensure that the telephone penetration level for all segments of society will be at least equal to the national average existing as of November 1996. In addition, we believe that schools, libraries, and other "community access centers" should be expeditiously connected to the NII as an integral part of making access to advanced telecommunications and information services more readily available. As the Telecommunications Act of 1996 continues to be implemented, NTIA will continue to be a strong advocate for rural and underserved Americans, undertaking research, filing comments with the FCC, and participating in a variety of fora to ensure that these communities have access to these services, and the opportunities they provide, at reasonable rates.

For example, on behalf of the Departments of Commerce, Education, and Agriculture, NTIA filed the Administration's "education rate," or "e-rate" plan with the Federal-State Joint Board on Universal Service. The Joint Board adopted many

Administration-recommended features in its own plan, such as a procurement approach that uses competitive bidding and special tiered discounts for economically disadvantaged schools or libraries.

In addition, as directed by the Telecommunications Act of 1996, NTIA, in conjunction with the Department of Health and Human Services, recently issued a *Report to the Congress on Telemedicine*. The report examines questions relating to patient safety, the efficacy and quality of telemedicine service providers, as well as other legal, medical and economic issues which might act as barriers, or help promote, the development and expansion of telemedicine. The report highlights how telemedicine can mean the difference between life and death when fast medical response time and specialty care are needed. In addition, the report illustrates the adaptability of telemedicine to isolated rural areas and urban centers.

NTIA has pursued universal access policies through many other means as well. Among other things, NTIA has held public field hearings throughout the nation on universal service, issued a notice of inquiry and subsequent report on the subject, holding an electronic "virtual" conference on the subject, and working on "Net Day" activities, in which volunteers are found to help wire

schools that cannot afford professional information system installation.

Serving Rural and Underserved America

Children today need the best education in the world to be ready for the Information Age. As the President has clearly stated, it is important to prepare the country for the 21st Century, and in order to give our children the best education we must help them to harness the powerful forces of technology. Technology is going to be central to the new mission of schools in our country. Study after study is beginning to demonstrate that students who use technology learn better and learn differently from children who do not. Study after study is showing that there is a demand for skilled workers in this country, for employees who understand how computers work. We have to train our children for the jobs they are going to be walking into when they finish school. NTIA's Telecommunications and Information Infrastructure Assistance Program (TIIAP) is helping bridge this gap for thousands of Americans.

TIIAP provides matching grants to schools, libraries, hospitals, State and local governments and other non-profit entities. Since its inception in 1994, TIIAP has awarded 277

grants in all 50 states, the District of Columbia and the U.S. Virgin Islands. Approximately $79 million in Federal grants have been matched by more than $133 million in non-Federal funds. In 1996 alone, TIIAP leveraged $18.6 million in Federal funds matched by $30 million in private, State and local funding and awarded 67 grants (from over 800 applicants) to projects in 42 states and the District of Columbia. TIIAP projects funded in previous years are providing innovations in education; helping create more responsive public institutions; enhancing economic development in rural and disadvantaged areas; and increasing access to health care. Almost 90 percent of the funding went to serve rural Americans or traditionally under served Americans living in urban areas.

For example, in Sacramento, California, the NET at Two Rivers is using a TIIAP grant to establish a 15-county regional computer network. The network will include 50 public access sites in schools, community center, libraries and resource centers. Citizens will benefit by using the free, on-line literacy instructional materials in a on-on-one coaching situation providing Internet skills. The training sessions and computer tutorials are tailored to people looking for new jobs or re-training. The project demonstrates how information infrastructure can level the playing field by bringing new

educational opportunities to a traditionally under served population.

TIIAP provided a grant to the Borough of Munhall in Pennsylvania to work with seven police departments to ensure the safety of their citizens by striving to have a more visible police presence. The seven police agencies are using information technology to share mug shots, check aliases, note identifying characteristics, and communicate other crucial information that might not otherwise find its way across jurisdictional boundaries. In a recent incident, the Munhall Police Chief credits the TIIAP-supported system with helping quickly identify a suspect in an apparent gang warfare-related murder of a two-year-old child. In January of this year, a family had stopped for gas when a group of individuals began shooting at one another. The child, strapped in a car seat, was fatally wounded in the crossfire. Police were able to identify the alleged assailant from eyewitnesses. Using the TIIAP-supported information system, they learned his aliases, and retrieved a mug shot, which they circulated to hundreds of police. Within a week, the shooter was apprehended.

The City of Crete, Nebraska, received funding to keep this small rural town a viable community. The grant funds the

purchase of computers to build an access center where adults can be taught computer skills, find jobs, and build the town's economy. The project has an integrated family resource center that houses organizations such as Head Start, day care, and health services. Plans are underway for the human services clients to do computer outsource work. The family resource center will also begin to provide information technology training for their clients. The project also focuses on having children in school teach senior citizens how to use computers and the Internet at home. This grant explores inter-generational learning as a way to keep the community together. In the long term, that sense of community may determine whether young adults leave the town to seek better opportunities.

The State of Colorado and six partners, including the Colorado Rural Telecommunications Project, the Colorado Department of Agriculture, the U.S. Environmental Protection Agency, the Yampa Valley Economic Development Council and the Adams State College have developed a database that summarizes the potential of information on land use data, such as natural resources, wildlife, soil, and infrastructure. Prior to this project, the information was not shared across agencies, and sat relatively unused because a special software package was needed to manipulate the information. This made analysis difficult, if

not impossible. With computer technology, it is now possible for any user on the Internet to assess tradeoffs on land use, and reduce conflict concerning land management.

The New York State Office for the Aging (SOFA) in Albany, New York, is developing the Aging Services Network (ASNet), to demonstrate new ways of applying computing, telecommunications, and information infrastructure to the human services industry. Over $17 billion in Medicaid expenditures are made each year in New York State alone. Of that amount, over $5 billion is spent annually on long term care for the elderly. The resources available to cover these costs are already unable to keep pace and, given the demographic projections, dramatic changes in how our society responds to the needs of the elderly seem inevitable. The ASNet project is using information systems to address the practical problems of information management and delivery of services to the elderly. The project focuses on reducing costs while increasing the quality and coordination of services so that provider agencies can meet the increasing demands of this growing population.

The White Mountain Apache Tribe in Whiteriver, Arizona, is using a TIIAP grant to gain access to the Internet for the first time. There are few areas in the country that have the same

geographic isolation and none that combine that isolation with the high incidence of economic deprivation that is found on the Fort Apache Indian Reservation. Once the project is underway, it will provide community-wide networking to assist in economic development, lifelong learning, and improved delivery of health services and information to the Tribe and residents of the region. The Tribe is working with the Arizona Public Services Corporation and the local Internet Service Provider to secure a toll-free local connection to the Internet. It is important to note that more and more tribes are looking to NTIA for assistance with access to telecommunications. NTIA's longstanding history of promoting tribal access places NTIA in a unique position -- with adequate resources -- to meet the telecommunications needs of tribes.

At-risk students are earning high school credits in rural West Virginia thanks to a TIIAP grant using video teleconferencing. The award provides funds to connect advanced computers in as many as 20 homes. Teachers from the Regional Alternative Learning Center will be able to work with students who are unable to attend school. The Regional Alternative Learning Center will utilize a two-way, interactive video telecommunications system to provide home-based instruction to high school juniors and seniors who are unable to attend a

traditional school environment. The project grew out of the need for schools to comply with new state legislation to provide service to students who are unable to attend school for disciplinary reasons. The project will provide instructional and counseling services for pregnant teens and other students who are unable to attend school for medical reasons.

TIIAP provides critical seed money, without which many innovative and vital applications would not take root and grow in these communities. In every project that NTIA has funded, TIIAP has brought together members of the community to form new partnerships. Without such partnerships, individual players would be unable to build networks or purchase computer and video equipment in order to train teachers, students, doctors, nurses, and librarians. While NTIA provides seed money, the vision of each of these projects springs up from local communities. The projects and their goals are what local residents feel they need, not what the Federal Government thinks is good for them.

Last year, NTIA released the "Lessons Learned from TIIAP" report, which presents the initial experiences of the projects funded in 1994 and 1995. "Lessons Learned" was the product of NTIA discussions with focus groups of current grantees to learn about their experiences and share their lessons. The report

offers a snapshot look at the community impacts of TIIAP projects, and presents examples of how specific projects are using advanced telecommunications and information technologies to provide better services, to strengthen community ties, and to provide increased access to information for thousands of Americans.

This year, TIIAP staff will begin a formal, independent evaluation on the effects of the first few years of grants and will develop a sophisticated reporting system that will allow TIIAP to evaluate grant impacts on an ongoing basis. Now that the program is in its fourth year, NTIA will be increasing the emphasis on evaluation and dissemination for the grants that have been awarded.

For FY 1997, TIIAP has received 922 applications seeking over $350 million in grant funds. These applications represent more than fifteen times what NTIA can fund, making TIIAP one of the most competitive Federal grant programs. NTIA has held a series of regional Outreach Workshops to discuss the Program, and in so doing discuss the program funding priorities and application requirements. These workshops have been well attended and well received. The workshops provide a key opportunity for interested parties to understand the TIIAP goals

and process and meet representatives of other organizations interested in the Program.

BUDGET AND OPERATIONS MATTERS

Fiscal Year 1998 Budget Request

NTIA is seeking $54,074,000 for Fiscal Year 1998 for salaries and expenses (S&E) and agency programs. For S&E, NTIA seeks $18,074,000. This includes an increase to conduct work necessary for the United States to host the International Telecommunication Union Plenipotentiary Conference in Minnesota in 1998. NTIA seeks $36,000,000 to fund TIIAP.

Operating Framework

Beginning in 1990, Congress passed several major pieces of legislation governing the operations and management of Federal departments and agencies, specifically:

-- the Chief Financial Officers Act of 1990, as amended by the Government Management Reform Act of 1994;
-- the Government Performance and Results Act of 1993; and
-- the Clinger-Cohen Act of 1996.

The Chief Financial Officers Act requires Federal departments and agencies to prepare annual financial statements and have those statements audited in accordance with generally accepted auditing standards. The Department of Commerce is committed to improving financial information and financial management capabilities. NTIA was one of the first Commerce agencies to receive an unqualified opinion on its financial statements for 1993, and continued to receive unqualified opinions on the 1994, 1995 and 1996 statements. In 1995 and 1996, the audits conducted were formal full scope audits. The unqualified opinion confirms that NTIA's financial statements fairly present the financial position of the agency.

Under the Government Performance and Results Act (GPRA), NTIA has initiated a comprehensive strategic planning process, which will provide a framework for our employees and stakeholders to work together to define agency priorities and establish performance measures. NTIA managers have embraced the planning process as a way to improve our management and maximize the return to the public from the agency resources available. An NTIA team, including all senior managers and several staff members from across the agency, have been meeting since January 1997 to define the strategic plan elements. At this point, the formal agency plan is being drafted and individual office heads

are working with their staff to define appropriate performance measurements for the agency's goals. NTIA expects to submit the initial plan to the Department in June and work with the Department and the Congress on refining the NTIA strategic plan over the summer.

NTIA is also working closely with the Department to properly implement the philosophy of the Clinger-Cohen Act, which will improve our management of the information technology investments necessary to enable us to fulfil our missions. The agency strategic plan will be directly supported by strategic and operational information technology plans. A process is being designed to ensure that all major information technology investments are evaluated in terms of the overall value to the organization.

CONCLUSION

Telecommunications and information issues are dynamic, multi-disciplinary, and complex. NTIA is the only Executive Branch agency focused exclusively on telecommunications and information. Other agencies, such as the Department of State, International Trade Administration, and the U.S. Trade Representative, depend on and use NTIA's telecommunications

expertise to support the accomplishment of their missions. The agency’s high quality reputation is built on a foundation that maximizes the synergistic benefits of telecommunications experts in domestic policy, international policy, spectrum management, spectrum planning, spectrum analysis, radio wave characteristics, voice and video quality assessment, national and international standards development, and International Telecommunication Union activities, as well as practical applications through demonstration, pilot and other community projects. Many countries look to the United States as an example of how to support and nurture a viable, competitive, rich telecommunications and information industry. The Nation needs the expertise of NTIA to continue its role as a leader in global telecommunications and remain competitive worldwide.

With less than 300 employees and limited resources, NTIA provides a significant return on the taxpayers' investment. Over the last year, NTIA's cost-cutting and streamlining of operations have had a dramatic impact on the agency's ability to retain key policy and engineering staff needed to deal with the sweeping technological changes in the telecommunications and information sectors. In July 1994, NTIA had 361 employees. Today, we have 278 -- a loss of 83 people, a staff cut of almost 25 percent. Unfortunately, we have lost many first-rate technology and

computer experts, as well as engineers from our spectrum management shop and our research lab, both of which contribute immensely to the development of more efficient, technologically advanced telecommunications technologies. These cuts have had an impact. NTIA's leadership and expertise in the dynamic telecommunications and information arena will be greatly compromised without adequate resources.

NTIA serves a vital role. All organizations should be subject to continued scrutiny to ensure that they are operating efficiently and effectively. Unnecessary functions and activities should be eliminated and privatization should be utilized where appropriate. But we should not -- must not -- eliminate programs and responsibilities that are critical to our economic future. NTIA works very hard to spur innovation and job creation and promote a competitive marketplace that will result in more choices and lower prices. The American people are being well-served by NTIA. As NTIA Assistant Secretary for almost four years now, I continue to be proud of what NTIA is accomplishing and the differences we have made in the lives of all Americans.

In short, NTIA is in a unique position to influence significantly the ability of U.S. companies to compete in the global marketplace of the 21st century and to enhance the

benefits to the public of a strong, competitive telecommunications industry and infrastructure. We would appreciate the support of this Committee so that NTIA may continue to achieve these important ends, and we look forward to working with you in the future.